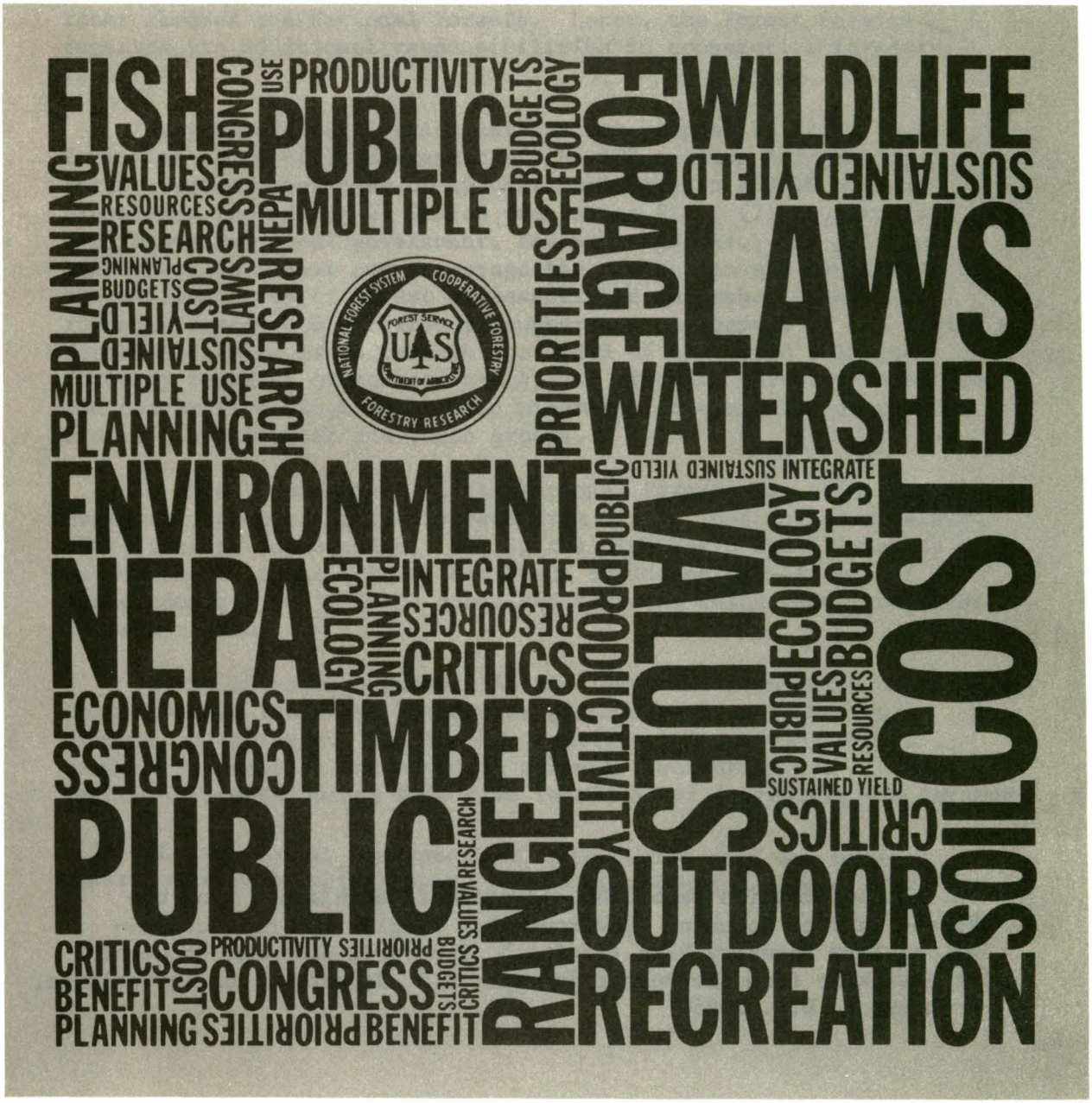
SD11
F601
#13
C.1

CI | 13

Highlights of THE ENVIRONMENTAL PROGRAM FOR THE FUTURE

A LONG TERM FORESTRY PLAN (DRAFT)



Forest Service • U.S. Department of Agriculture
Current Information Report No. 13 • August 1974

Current Information Report No. 13 presents Highlights from the Forest Service document "Environmental Program for the Future--a Long-Term Forestry Plan (Draft)." The total 240-page document is available from the Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250.

Highlights of

THE ENVIRONMENTAL PROGRAM FOR THE FUTURE

A Long Term Forestry Plan (Draft)

Introduction

The Forest Service in the U.S. Department of Agriculture has the primary federal responsibility for the protection and development of the Nation's forestry resources. The Forest Service was formed in 1905 when the Bureau of Forestry in the Department of Agriculture was given the responsibility of managing the Nation's Forest Reserves, later renamed the National Forests. Later, the Forest Service received its additional responsibilities in cooperative forestry research.

Today the Forest Service carries out responsibilities in the following areas--(1) Management of the 187 million acre National Forest System consisting of 155 National Forests and 19 National Grasslands located in 44 States and Puerto Rico; (2) Cooperation with State and local government, forest industries, and private landowners to assist and encourage the protection and management of 574 million acres of forest and associated watershed lands; (3) Forestry research undertaken in support of management of the Nation's forest and range lands through operation of the world's largest forestry research organization; (4) Use of basic forestry resources and cooperative programs to help minority, economically depressed, elderly, handicapped and youth groups.

At first, management of the National Forests was primarily custodial, protecting the forests from fires, insects and diseases, over-grazing, and erosion. But by the time World War II started, use of the National Forests had begun to intensify. After the war ended, demands for all the goods and services which came from these forests zoomed.

In the 15 years between 1945 and 1960, the population of the United States increased 30 percent and the real gross national product, 37 percent. During this same time, industrial timber product consumption increased 36 percent; recreation use of the National Forests during this time increased an incredible 900 percent.

National Forest management efforts during this era were understandably directed toward providing resources to meet the demands.

With the start of the 1960's, another factor entered the resource picture--intensified public concern for environmental quality. Suddenly the Nation began to realize that clean air and water, and natural beauty were just as important to our standard of living as were the products of industry. Increased concern for the Nation's forest lands was part of this awakening environmental consciousness.

Many Americans became aware for the first time of the 187 million acre National Forest System and realized that although these public lands contained much of the Nation's remaining natural resources, the resources were not inexhaustible and that there were limits to the extent they could be used.

The desires for a quality environment, however, did not lessen the public's needs for forest products and other services obtained from the National Forests. On the contrary, while concern for the environment reached new heights, demand for products and services continued to also increase. Various segments of the public wanted increased facilities for camping, skiing, hunting, and other recreational pursuits in the National Forests; other groups wanted more timber for housing, better managed watersheds for community water supplies, or more forage for livestock and game animals. Still others insisted that more National Forest areas be designated Wilderness.

Thus by the mid-1960's, the Forest Service seemed caught in an almost insoluble dilema: On one hand, conflicting demands for forestry resources were all increasing at a rapid rate; on the other, the resource base was fixed. In addition, some publics claimed that management of the National Forests was out-of-balance, that some uses were being increased at the expense of others; that the Forest Service was ignoring its mandate to manage the National Forests for Multiple Use. Moreover, they said, the public wasn't being given a chance to have any influence on the decision-making process of these forest lands, which after all, did belong to the public. Passage of the National Environmental Policy Act of 1969 and its requirements for Environmental Impact Statements provided additional opportunities for public environmental concerns to take substantive form.

New Direction

In the early Sixties, the President had presented to Congress a "Development Program for the National Forests," which showed the resource management and development work needed on the National Forests to assure that these lands would be able to provide their share of resources needed by the Nation. A similar program was developed for Forestry Research. These proposals, which would have provided needed program levels and policy direction for the Forest Service, were never fully funded nor implemented.

Thus, as the Agency entered the decade of the Seventies, it moved on several fronts in an attempt to administratively change its management direction to meet the challenges of the new era.

One step was to take a good, hard look at its basic objectives to be sure they were geared to the new demands and that they were responsive to public needs. As a result, in 1970 the Forest Service adopted a set of broad policy guidelines and objectives to help establish program direction in the coming years. Endorsed by the Secretary of Agriculture, these made available to the public in the publication "Framework for the Future."

In the early 1960's the Outdoor Recreation Resource Review had included the National Forests in its inventory of the Nation's recreation resources. Inventories of other national forest resources were also needed. The third in a series of periodical reviews of the entire timber resource in the United States was completed and published in 1973 as "The Outlook for Timber in the United States." The Forest Service undertook a complete inventory and analysis of the Nation's range lands, resulting in the Forest-Range Environment Study (FRES) published in 1973. The roadless areas in the National Forest System were inventoried under the Roadless Area Review and Evaluation (RARE), and after extensive public review and comment the Forest Service in 1973 designated 274 areas comprising 12.3 million acres to be studied for their wilderness potential.

Another new approach was strong emphasis on the use of interdisciplinary teams composed of a wide range of specialists--wildlife biologists, landscape architects, soil scientists, engineers, and foresters, for example--to prepare management and project plans. The Forest Service greatly intensified its efforts in obtaining meaningful public involvement in its decision-making processes.

It set up an "Inform and Involve" program to place greater emphasis on informing the public about proposed forestry activities and listening to and considering the often divergent public points of view as an aid to better decisionmaking.

Draft Environmental Program for the Future

The most extensive planning initiative undertaken by the Forest Service was to identify alternatives for the development of a long-range forestry plan for the Nation--the Draft Environmental Program for the Future. It is a comprehensive, long-range planning effort intended to set forth before the Nation several alternative directions that might be taken in setting the future course for management of the Nation's forests and related resources.

The planning is for the 10 year period 1975-84, although actions taken or not taken during this period will have major impacts well beyond 1984. The plan is not intended to fix rigid targets, budgets, or land allocations. It is a dynamic proposal, requiring periodic reassessments and adjustments as knowledge about demands, resources, and situations changes.

The Environmental Program for the Future is a comprehensive plan, involving the National Forest System, Research, and State and Private Forestry. A great many factors were considered in its development. First, the known use capabilities of the land, as determined in part by the resource inventories mentioned earlier, were considered with regard to the latest in technology. The next considerations were such factors as the demands on the resources and the current national issues involving their use.

To make projections of future demands on resources, the Forest Service used such factors as population growth, advancing technology, shifts in tastes and life styles, and increases in income levels. These projected demands are shown in Table I. The projections are not meant to be absolute, but do give some estimates of what the future demands will be for these resources.

Table I. Projected Demands for Specific Forest Resources.

**Recreation use of public land is increasing about 40 percent per decade.

Auto Travel for recreation was 23 percent of all National Forest visitor days in 1972, but is likely to be affected by energy shortages.

Camping is expected to rise 19 percent per decade on National Forest lands.

Fishing is increasing moderately, 15-20 percent per decade.

Big Game Hunting is anticipated to increase rapidly--as much as 20 percent per decade. Small game hunting will increase moderately.

Wilderness Travel - increased 80 percent in last decade, a large percent increase but in absolute numbers is still only 3.6 percent of total use.

Off-Road Vehicles--use of scooter, motorcycles and snow craft on National Forest land is likely to nearly double by 2000, strongly influenced by availability and price of fuel.

Skiing is likely to have a 15-20 percent increase continue.

**Timber. Consumption of timber from U.S. forests is estimated to increase 18-32 percent per decade until the year 2000, assuming no great increases in prices.

**Water. Nationwide, withdrawals of water from surface and underground sources are increasing about 23 percent per decade.

**Range. Grazing on forest range shows an average increase of 12 percent per decade with the greatest increase (20 percent) in the first 10 years.

**Minerals and Energy. The National Forests overlie most of our nonferrous metal reserves. There will be increasingly greater interest in developing the minerals in the western National Forests. Demand for coal is expected to rise 30 percent per decade until the year 2000. The western States will see a six-fold increase in coal production--a large but unknown amount underlies the National Forests. There is also a substantial amount of phospate, oil, and gas underlying National Forests.

**Special Uses. There are increasing demands for second homes and related facilities on private land within the National Forests. Increasing energy consumption requires electric transmission lines and pipelines, reservoirs and relocated facilities for water power, irrigation, flood control and culinary water are other spatial uses which occupy National Forest lands. Demands for recreation and commodity products will also greatly accelerate demand for new or improved access roads and trails over National Forest System lands.

A great many current issues involving natural resources were also considered in preparation of the plan's alternatives. A thorough discussion of these issues is available in Chapter III of the Draft Environmental Program for the Future. But in brief, the issues discussed involved such questions as: How, and when should clearcutting be used on the National Forests? What kinds of recreational facilities and opportunities should the National Forests provide and who should pay for them? How much Federal land should be designated as Wilderness? How can the Nation's forests satisfy a portion of the Nation's demand for timber and still satisfy many other demands as well? To what extent should National Forests be used for mineral production? And others. The discussion of these issues was intended to provide the public with some background in context with determination of management direction.

Thus, land use capabilities, resource demands and current issues were integrated with national management goals, legislative direction, and administration policy. The result was the three alternative levels of activity which can be applied to the Nation's forest lands.

The Alternatives

The work of the Forest Service involves many diverse, but interrelated activities, including National Forest management activities, technical assistance and grants to State and private forestry owners, and forestry research. To help in the planning process for this Environmental Program for the Future, the activities relating to both National Forest management and State and private forestry have been grouped into six "resource systems." Each system incorporates the major activities concerned with developing and managing that specific resource. The research activities are presented in a separate section.

Three alternative levels of effort for each activity have been identified. The primary difference among the three alternatives is in the amount of goods, services, and amenities which can be produced under each.

The Low Supply alternative would continue Forest Service program activity at about the 1973-74 level; no significant changes would be made in the next 10 years. Because of increasing demands, the end result of the low alternative would be a reduction in the proportion of goods, services, and amenities provided by Forest Service programs.

The Moderate Supply alternative would maintain the same rate of increase in resource protection and outputs that has occurred in the previous decade. This would result in the Forest Service providing the same proportion of goods and services during 1975-84 as it had been doing in the past.

The High Supply alternative would significantly increase both protection and resource outputs and broaden the balance of Forest Service programs, the result being greater quantities of both commodities and amenities. This alternative would result in a substantial increase in the proportion of goods, services, and amenities provided by Forest Service programs.

It is difficult to assess all of the great number of results of the activities and programs of these very complex resource systems. One method of doing so is that of using "key indicators." These "key indicators" are used to represent the output of an entire program for each system. For example, one indicator of the results of the Timber Resource System is the number of board feet of timber sold on the National Forests. This figure not only measures wood production, but also reflects the level of activity for other related goods and services such as roads that are used for purposes other than timber; land surveys that may help neighboring landowners to establish property lines, etc. Thus, a whole range of goods and services is affected and measured by each "indicator."

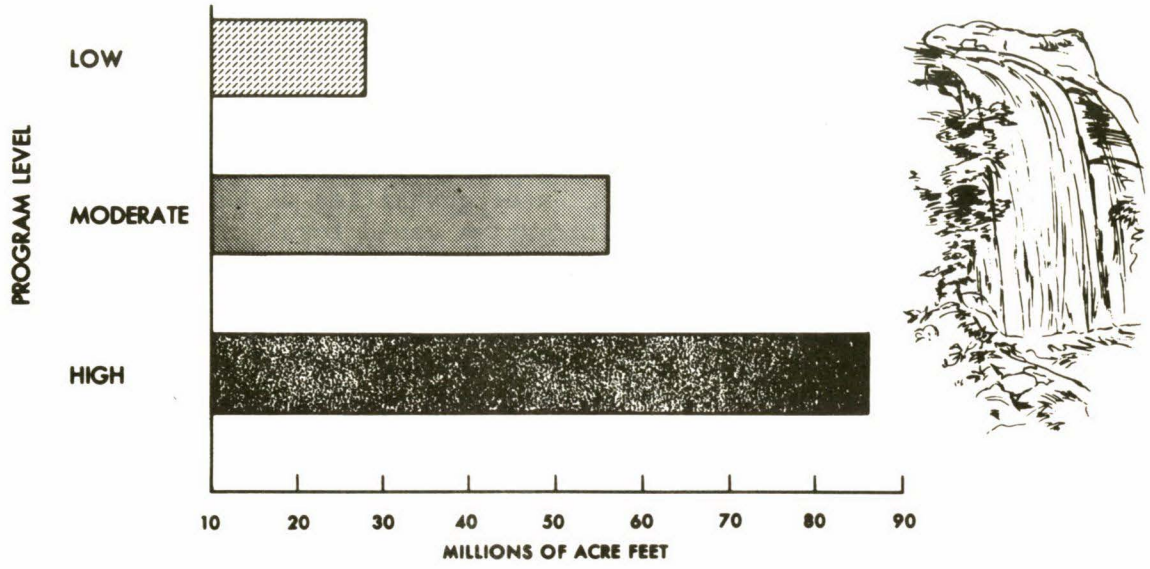
The three alternative levels of activity and key indicators for each resource system are listed in charts on the following pages. To understand how the charts work, look at the Recreation and Wilderness System as an example. There are three alternative levels of activity listed, the low, moderate, and high. Note that if the Forest Service carried out the sample activities listed under the Low Alternative the key indicator chart shows that total National Forest recreation use by 1984 would be 249 million visitor days. Under the Moderate Alternative, recreation use would be 252 million visitor days, and the High Alternative would provide 273 million visitor days of recreation use.

This example can be applied to all six resource systems. Application of various levels of activity will produce results which are measured by the appropriate key indicators. Resource system activities are displayed on pages 8-20; research activities start on page 21.

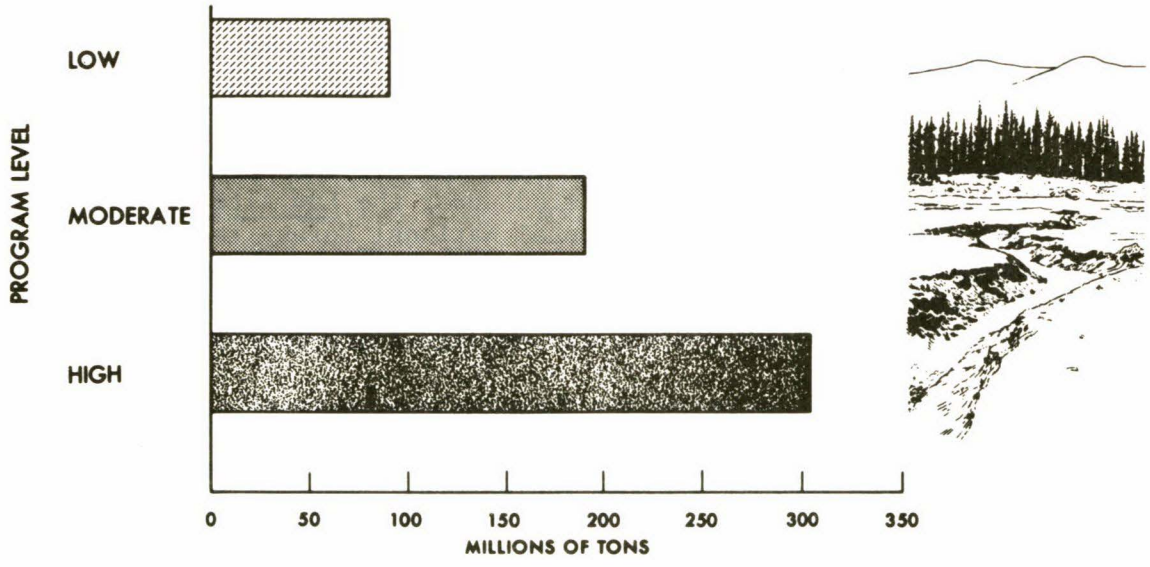
LAND AND WATER SYSTEM

INDICATOR OUTPUTS

WATER QUALITY IMPROVEMENT (ANNUAL RATE IN 1984)



SEDIMENT REDUCTION (ANNUAL RATE IN 1984)



LAND AND WATER SYSTEM

LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCE OUTPUTS

LOW SUPPLY ALTERNATIVE

On the National Forests and the National Grasslands:

- stabilize 100,000 acres of active sheet and gully erosion;
- treat 770 miles of streams and shorelines by stabilizing banks and removing debris;
- obliterate 1,800 miles of unneeded roads; restore land to productive base;
- restore 200 acres of those lands most disturbed by prospecting and surface mining; and
- study the potential additions to the National Wild & Scenic Rivers System on 16 watersheds.

Treat lands tributary to water resources development projects, including 45,000 acres of erosion control, stabilization, and rehabilitation, and 1,600 acres of keeping reservoirs free of debris to make the area safe for public use and to maintain scenic beauty.

Provide 65 man-years of assistance to State planning agencies and multi-county district planning organizations for cooperative planning.

Provide erosion control and critical area stabilization on 38,000 acres annually.

Provide 30 man-years of annual effort for coverage of Forest Service responsibilities in 60 interdepartmental and USDA planning programs. This effort will include limited data development, sampling intensity, and alternatives formulation.

MODERATE SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- stabilize 190,000 acres of active sheet and gully erosion;
- treat 2,400 miles of streams and shorelines by stabilizing banks and removing debris;
- obliterate 2,500 miles of unneeded roads; restore land to productive base;
- restore 300 acres of those lands most disturbed by prospecting and surface mining;
- study the potential additions to the National Wild & Scenic Rivers System on 24 watersheds.
- treat lands tributary to water resources development projects including 60,000 acres of erosion control, stabilization, and rehabilitation and 2,000 acres of keeping reservoirs free of debris to make the areas safe for public use and to maintain scenic beauty.

Provide 85 man-years of assistance to State planning agencies and multi-county district organizations for cooperative planning.

Provide erosion control and critical area stabilization on 50,000 acres annually.

Provide 45 man-years of annual effort for coverage of Forest Service responsibilities in 60 interdepartmental and USDA planning programs. This level will include basic data development, intermediate sampling intensity, and identification of alternatives with an array of actions to meet multiple objectives.

HIGH SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- stabilize 300,000 acres of active sheet and gully erosion;
- treat 6,000 miles of streams and shorelines by stabilizing banks and removing debris;
- obliterate 4,000 miles of unneeded roads; restore land to productive base;
- restore 500 acres of those lands most disturbed by prospecting and surface mining; and
- study the potential additions to the National Wild & Scenic Rivers System on 30 watersheds.

Treat lands tributary to water resources development projects, including 100,000 acres of erosion control, stabilization, and rehabilitation, and 3,500 acres of keeping reservoirs free of debris to make the areas safe for public use and to maintain scenic beauty.

Provide 125 man-years of assistance to State planning agencies and multi-county district planning organizations for cooperative planning.

Provide erosion control and critical area stabilization on 88,000 acres.

Provide 120 man-years of annual effort for coverage of Forest Service responsibilities in 60 interdepartmental and USDA planning programs. This level will include full data development, sampling at a high-confidence level, a full formulation of alternative actions to meet multiple objectives close intertie with other internal planning and follow-on implementation.

ACTIVITIES COMMON TO ALL ALTERNATIVES

On the National Forests and National Grasslands:

- by 1979, have comprehensive land-use management plans prepared for 75 percent of the National Forest System lands. Cooperate with the States and others to establish long-range ownership patterns for the National Forests. Conduct basic land and soil resource inventories to evaluate and describe conditions which illustrate inherent limitations and capabilities of specific land areas. Positively enhance, through scientific management, the quantity and timing of water flowing from National Forest lands. Inventory water uses and needs on National Forest lands. See that adequate quality water is available in streams, lakes, and rivers to administer and use the National Forests:
- endeavor to assure that water resource development proposals are compatible with and harmonize with other resource and environmental values;
- intensify administration of 150,000 mining claims, minerals leases, and prospecting permits; and
- conduct mineral investigations on 24 million acres for multiple-use planning and keep aware of mineral activity.

Assure orderly occupancy and use of about 7,600,000 acres by about 61,000 holders of special land-use permits. This represents an anticipated increase of 12,000 permits. The 1973 level was 49,000 permits. This increase would provide for:

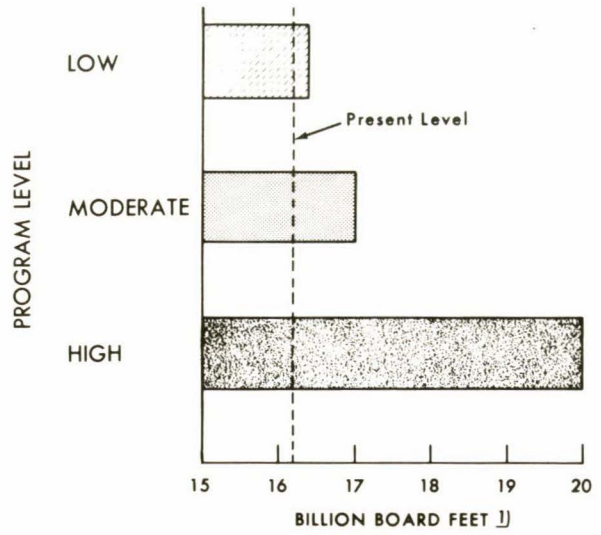
- 1,000 recreation facilities (not recreation residences);
- 5,000 roads, 7,000 utilities, and 2,000 water facilities;
- 1,000 industrial and minerals-related uses; and
- 1,000 community developments.

On all forest lands:

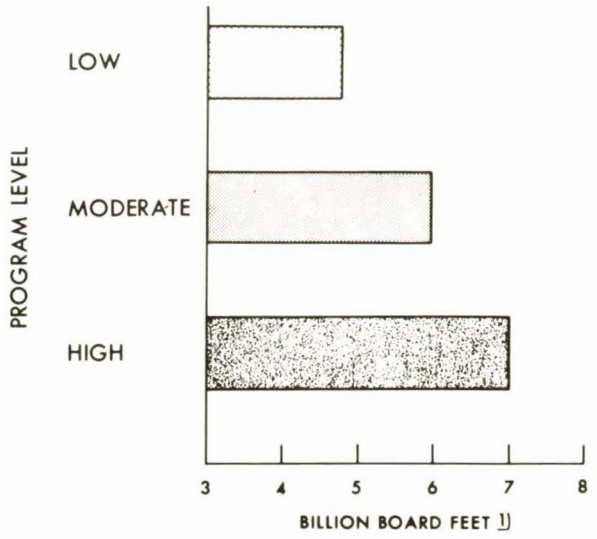
- promote more effective use of forests for municipal water supply and esthetic or recreational activities related to water use or enjoyment;
- cooperate with other Agencies in assisting local organizations to plan and install forestry measures for watershed protection on non-Federal lands; and
- rehabilitate sites of natural disasters by restoring the land to a favorable watershed condition. Emergency measures would be taken on new burns, flood damage, and earthquake damage within the limits of authority on National Forest System and State and private forest lands.
- Improve landownership patterns to achieve efficiences in administration and management.

TIMBER RESOURCE SYSTEM

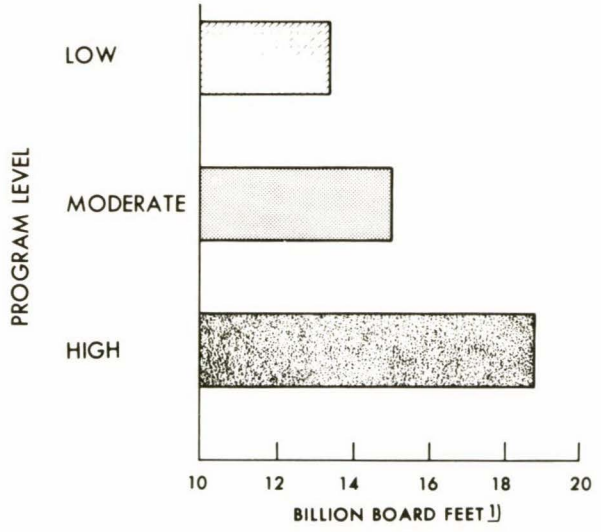
ANNUAL NATIONAL FOREST ALLOWABLE HARVEST (1984)



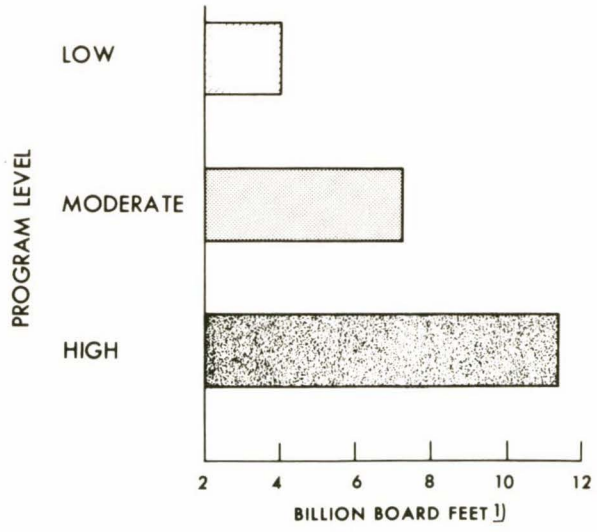
TIMBER HARVESTED WITH TECHNICAL ASSISTANCE (DURING PERIOD 1975-1979)



TIMBER SALES OFFERINGS ON NATIONAL FORESTS (1984)



INCREASED TIMBER SUPPLY THRU IMPROVED UTILIZATION (DURING PERIOD 1975-1979)



1/ INTERNATIONAL ¼" LOG SCALE

TIMBER RESOURCE SYSTEM

LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCE OUTPUTS

LOW SUPPLY ALTERNATIVE

On the National Forests:
- conduct silvicultural examinations and prepare prescriptions for 16 million acres;
- carry out inventories on 39 forests covering 25 million commercial forests acres and prepare timber management plans on 46 forests covering 29 million commercial forest acres;
- offer for sale approximately 13.4 billion board feet 1/ of timber annually;
- initiate 1,200 miles of road construction and reconstruction for timber access;
- administer timber sale purchaser road construction on 36,000 miles and provide supplemental work as appropriate;
- continue the availability for timber production and currently inventoried commercial forest land now available for that purpose through the sale area betterment program by reforestation of 1.2 million acres of cutover land and thinning and other cultural measures on 1.5 million acres; and
- reforest 765,000 acres, apply thinnings and other cultural measures to 500,000 acres, and conduct commercial thinning and salvage effects to increase growth that will result in increasing the a allowable harvest by 0.2 billion board feet by 1984.

Provide technical assistance to 580,000 woodland owners on 37 million acres that will result in:
- 1.5 million acres of planting and seeding;
- 0.9 million acres of timberstand improvement, and
- forest land management plans for 465,000 acres.

Provide technical assistance to 30,000 forest products operators to improve utilization efficiency and profit that will increase timber supply during the period by 4 billion board feet.

Provide timber harvesting technical assistance involving 4.8 billion board feet on 8.6 million acres.

Cooperate with States in:
- producing and distributing 2.8 billion seedlings;
- planting and seeding 3.5 million acres;
- developing and managing seed orchards on 5,000 acres; and
- producing 700 million trees from improved seed.

MODERATE SUPPLY ALTERNATIVE

On the National Forests:
- conduct silvicultural examinations and prepare prescriptions for 19 million acres;
- carry out inventories on 50 forests covering 31 million commercial forest acres and preparing timber management plans on 61 forests covering 37 million commercial forest acres;
- offering for sale approximately 14.8 billion board feet 1/ of timber by 1979;
- initiate 3,850 miles of road construction and reconstruction for timber access;
- administer timber sale purchaser road construction on 42,500 miles and provide supplemental work as appropriate;
- continue the availability for timber production the currently inventoried commercial forest land now available for that purpose through the sale area betterment program by reforestation of 1.4 million acres of cutover land and thinning and other cultural measures on 1.2 million acres; and
- reforest 815,000 acres, apply thinning and other cultural measures to 1.2 million acres, and conduct commercial thinning and salvage efforts to increase growth that will result in increasing the allowable harvest by 0.8 billion board feet by 1984.

Provide technical assistance to 725,000 woodland owners on 46 million acres that will result in:
- 3.7 million acres of planting and seeding;
- 2.9 million acres of timberstand improvement; and
- forest land management plans for 618,000 acres.

Provide technical assistance to 36,800 forest products operators to improve utilization efficiency and profit that will increase timber supply during the period by 7.3 billion board feet.

Provide timber harvesting technical assistance involving 6.0 billion board feet on 10.7 million acres.

Cooperate with States in:
- producing and distributing 4.3 billion seedlings;
- planting and seeding 5.4 million acres;
- developing and managing seed orchards on 7,000 acres; and
- producing 800 million trees from improved seed.

HIGH SUPPLY ALTERNATIVE

On the National Forests:
- conduct silvicultural examinations and prepare prescriptions for 25 million acres;
- carry out inventories on 62 forests covering 41 million commercial forest acres and preparing timber management plans on 73 forests covering 47 million commercial forest acres;
- offer for sale approximately 17.1 billion board feet 1/ of timber by 1979;
- initiate 8,750 miles of road construction and reconstruction for timber access;
- administer timber sale purchaser road construction on 40,000 miles and provide supplemental work as appropriate;
- continue the availability for timber production the currently inventoried commercial forest land now available for that purpose through theesale area betterment program by reforestation of 1.9 million acres of cutover land and thinning and other cultural measures on 1.5 million acres; and
- reforest 1.5 million acres; apply thinning and other cultural measures to 3.0 million acres of young timberstands, and conducting commercial thinning and salvage efforts to increase growth that will result in increasing the allowable harvest by 3.8 billion board feet by 1984.

Provide technical assistance to 900,000 woodland owners on 60 million acres that will result in:
- 4.7 million acres of planting and seeding;
- 3.7 million acres of timberstand improvement; and
- forest land management plans for 1,090,000 acres.

Provide technical assistance to 40,000 forest products operators to improve utilization efficiency and profit that will increase timber supply during the period by 11.4 billion board feet.

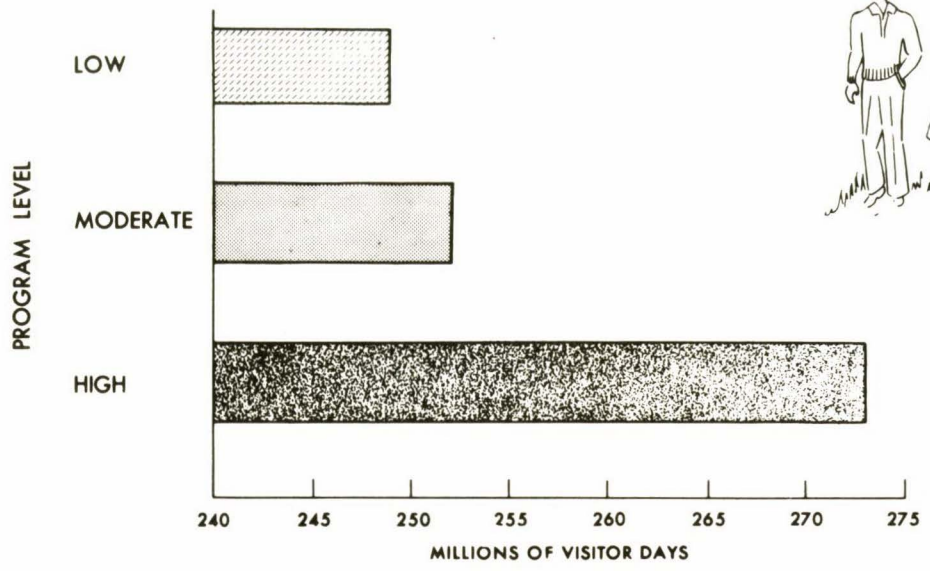
Provide timber harvesting technical assistance involving 7.0 billion board feet on 13.3 million acres.

Cooperate with States in:
- producing and distributing 5.9 billion seedlings;
- planting and seeding 7.4 million acres;
- developing and managing seed orchards on 8,000 acres; and
- producing 1,000 million trees from improved seed.

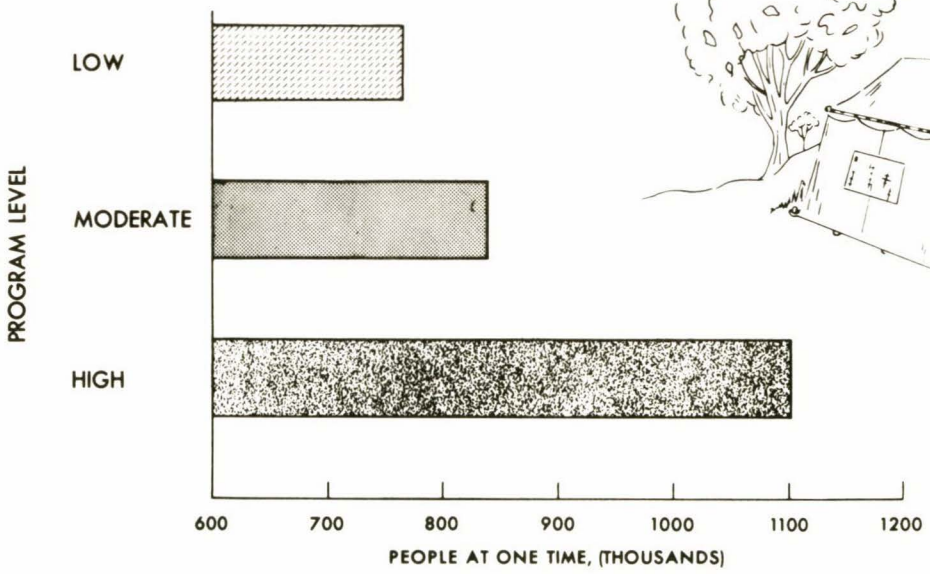
1/ All volume is given in international 1/4" log rule.

RECREATION & WILDERNESS SYSTEM

TOTAL NATIONAL FOREST RECREATION USE (DISPERSED AND DEVELOPED) (1984)



CAPACITY OF FOREST SERVICE OPERATED DEVELOPED RECREATION FACILITIES (1979)



LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCE OUTPUTS

LOW SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- Plan and develop new Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 15,000. These sites would include camp- and picnic grounds, visitor information centers, and other developed recreation;
- maintain facilities and provide sanitation and cleanup at Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 765,000 in 1979;
- provide interpretative and orientation services at 470 sites; and
- continue development and use of methods to better recognize and protect landscape values in the design of resource-use activities; and

Provide technical assistance to woodland owners on 20,000 acres for establishment of trails, parks, or recreation areas.

MODERATE SUPPLY ALTERNATIVE

On the National Forest and National Grasslands:

- plan and develop new Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 87,000. These sites would include camp- and picnic grounds, visitor information centers, and other developed recreation;
- rehabilitate or improve Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 100,000;
- maintain facilities and provide sanitation and cleanup at Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 837,000 in 1979;
- provide interpretative and orientation services at 675 sites;
- study 1.7 million acres from the final new study area list for consideration as wilderness;
- accelerate development and use of methods to better recognize and protect landscape values in the design of resource use activities.
- increase management for and of dispersed area recreation;
- initiate 600 miles of road construction and reconstruction for recreation use and for access to wilderness and dispersed recreation use; and
-
- initiate 1,800 miles of trail construction and reconstruction for expansion of dispersed recreation use opportunities.

Provide technical assistance to woodland owners on 27,000 acres for establishment of trails, parks, or recreation areas.

HIGH SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- plan and develop new Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 351,000. These sites would include camp- and picnic grounds, visitor information centers, and other developed recreation;
- rehabilitate or improve Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 110,000;
- maintain facilities and provide sanitation and cleanup at Forest Service-operated recreation sites with a people-at-one-time (PAOT) capacity of 1,100,000 in 1979;
- provide interpretative and orientation services at 1,050 sites;
- study 2.4 million acres from the final new study area list for classification as wilderness;
- accelerate development and use of methods to better recognize and protect landscape values in the design of resource use activities.
- intensify management for and of dispersed area recreation;
- initiate 2,000 miles of road construction and reconstruction for recreation use and for access to wilderness and dispersed recreation use; and
- initiate 6,100 miles of trail construction and reconstruction for expansion of dispersed recreation use opportunities.

Provide technical assistance to woodland owners on 47,000 acres for establishment of trails, parks, or recreation areas.

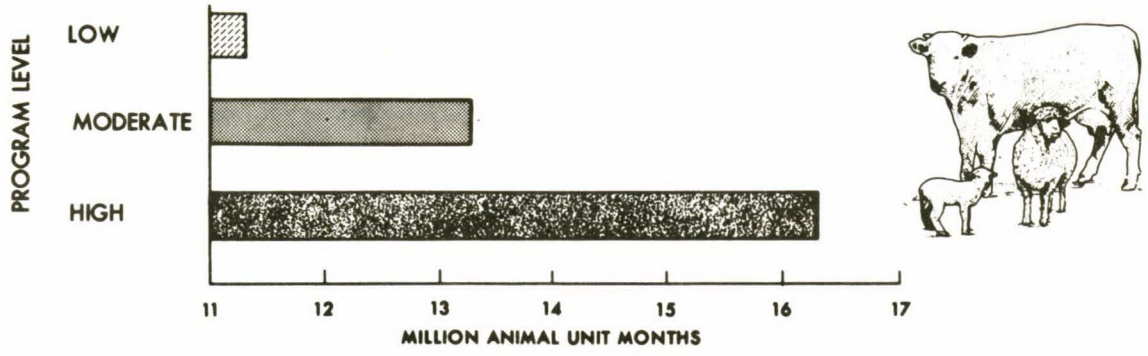
ACTIVITIES COMMON TO ALL ALTERNATIVES

On the National Forests and National Grasslands:

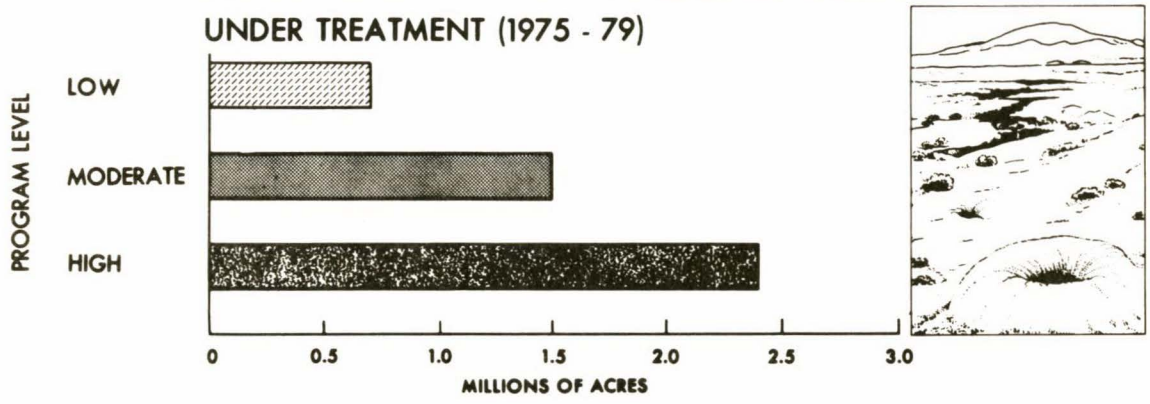
- administer 19,000 recreation residence permits but provide no additional sites;
- manage Wilderness, complete reclassification of Primitive Areas, and manage all areas identified as possible wilderness so as to not compromise the possibility of wilderness classification pending study; and
- encourage appropriate expansion of the National Wild and Scenic Rivers and the National Trails Systems and manage these existing systems.

RANGE RESOURCE SYSTEM

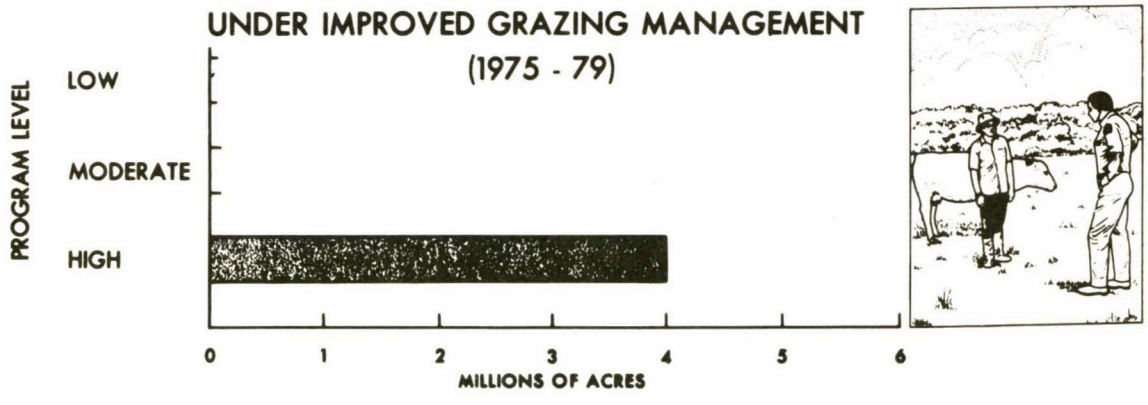
ANIMAL UNIT MONTHS OF GRAZING (1984)



ADDITIONAL ACRES OF DETERIORATED RANGE UNDER TREATMENT (1975 - 79)



MILLIONS OF ACRES OF PRIVATELY OWNED FOREST-RANGE UNDER IMPROVED GRAZING MANAGEMENT (1975 - 79)



LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCE OUTPUTS

LOW SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- increase the number NFS range allotments under improved management by 500 (6,570 to 7,070);
- maintain the available NFS grazing at 11.3 million animal-unit-months;
- initiate treatment, through improved management, on .7 million acres of deteriorated NFS rangeland; and
- remove livestock grazing from 2.4 million acres of poor condition NFS rangeland.

MODERATE SUPPLY ALTERNATIVE

On the National Forest and National Grasslands:

- increase the number of NFS range allotments under improved management by 1,000 (6,570 to 7,570);
- increase the available NFS grazing by 2 million animal-unit-months;
- initiate treatment, through improved management, on 1.5 million acres of deteriorated NFS rangland;
- remove livestock grazing from 2.4 million acres of poor condition NFS rangeland; and
- adjust distribution of grazing from poor condition NFS rangeland to rangeland with additional capacity.

HIGH SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- increase the number of NFS range allotments under improved management by 1,730 (6,570 to 8,300);
- increase the NFS available grazing by 5 million animal-unit-months;
- initiate treatment, through improved management, on 2.4 million acres of deteriorated NFS rangeland; and
- remove livestock grazing from 2.4 million acres of poor condition NFS rangeland.

On privately owned forest-range:

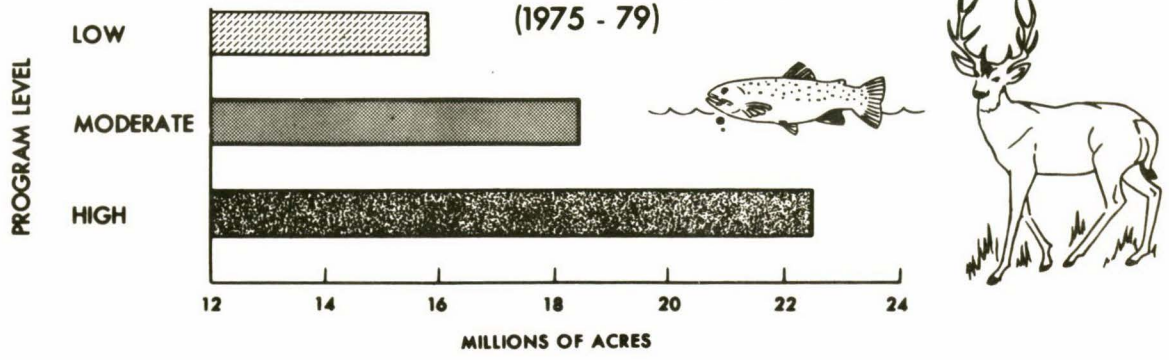
- provide assistance in the identification and elimination of exploitative grazing on 1.4 million acres; and
- provide assistance in the establishment and expansion of proper grazing management on 4 million acres.

On all forest rangeland:

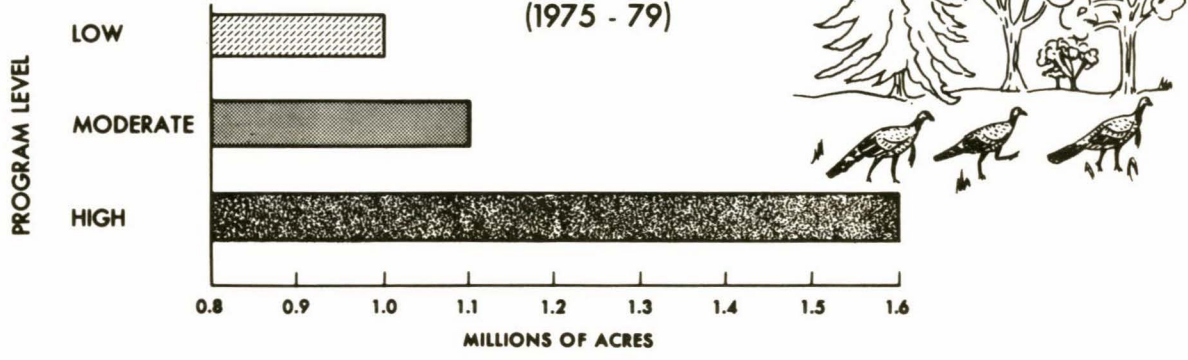
- monitor and research the social, economic, and ecological responses of selected areas to more intensive range programs; and
- provide feedback information for future program direction.

WILDLIFE AND FISH HABITAT SYSTEM

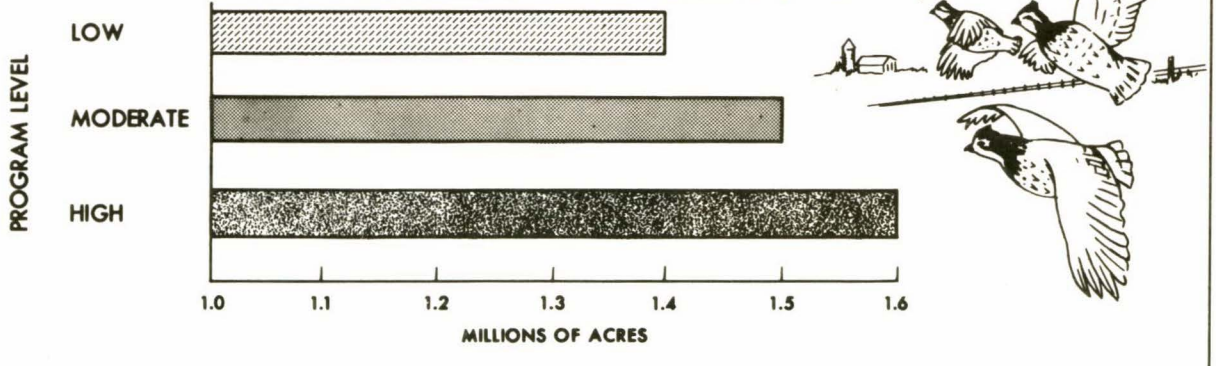
WILDLIFE HABITAT IMPROVEMENT THROUGH COORDINATION WITH OTHER MANAGEMENT ACTIVITIES (1975 - 79)



WILDLIFE HABITAT IMPROVEMENT THROUGH DIRECT HABITAT IMPROVEMENT ON NATIONAL FOREST LANDS (1975 - 79)



AREA OF HABITAT IMPROVED THROUGH ASSISTANCE ON NONINDUSTRIAL PRIVATE LANDS (1975 - 79)



LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCT OUTPUTS

LOW SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- improve habitat through coordination with other management activities on 15.8 million acres;
- protect endangered and threatened species through management practices specially designed for that purpose and improve habitat on 110,000 acres; and
- improve 900,000 acres of fish and wildlife habitat.

Provide technical assistance to woodland owners that will result in 1.4 million acres of wildlife habitat development.

MODERATE SUPPLY ALTERNATIVE

On the National Forests and National Grasslands:

- improve habitat through coordination with other management activities on 18.4 million acres;
- protect endangered and threatened species through management practices specially designed for that purpose and improve habitat on 195,000 acres; and
- improve 1.0 million acres of fish and wildlife habitat.

Provide technical assistance to woodland owners that will result in 1.5 million acres of wildlife habitat development.

HIGH SUPPLY ALTERNATIVE

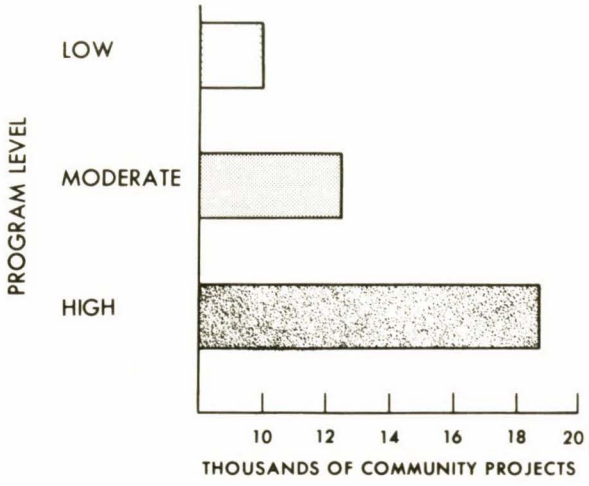
On the National Forests and National Grasslands:

- improve habitat through coordination with other management activities on 22.5 million acres;
- protect endangered and threatened species through management practices specially designed for that purpose and improve habitat on 400,000 acres; and
- improve 1.2 million acres of fish and wildlife habitat.

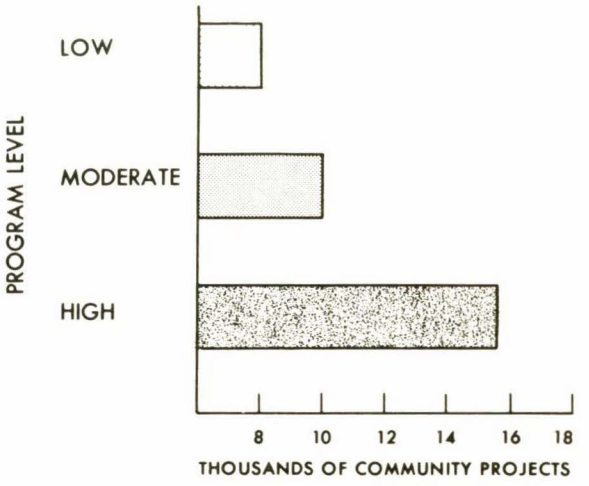
Provide technical assistance to woodland owners that will result in 1.6 million acres of wildlife habitat development.

HUMAN & COMMUNITY DEVELOPMENT SYSTEM

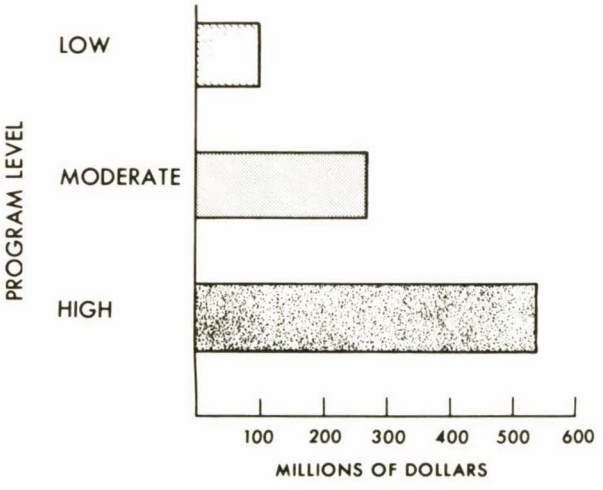
NUMBER OF COMMUNITY PROJECTS PROVIDED COMPREHENSIVE PLANNING ASSISTANCE (1975-79)



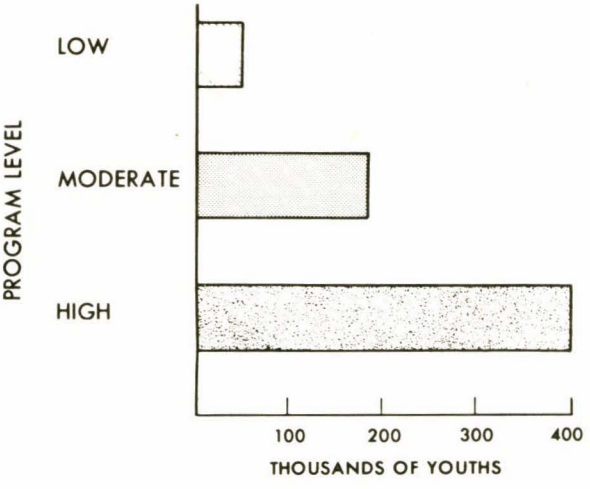
NUMBER OF COMMUNITY PROJECTS PROVIDED TECHNICAL BUSINESS AND INDUSTRIAL DEVELOPMENT ASSISTANCE (1975-79)



APPRAISED VALUE OF CONSERVATION WORK ACCOMPLISHED BY MANPOWER AND YOUTH TRAINING PROGRAMS (1975-79)



NUMBER OF YOUTHS PROVIDED MEANINGFUL CONSERVATION WORK EXPERIENCE (1975-79) (YCC)



HUMAN & COMMUNITY DEVELOPMENT SYSTEM

LEVEL OF ACTIVITY REQUIRED DURING PERIOD 1975-79 TO PRODUCE OUTPUTS

LOW SUPPLY ALTERNATIVE

Youth Conservation Corps: Continue this program at its present level during the plan period. During the next 5 years, this will result in:

- 50,000 youths gainfully employed with personal income amounting to almost $19 million;
- 4 million hours of work-learning experience;
- an appraised value of $62.5 million of conservation work; and
- an equivalent of 450,000 hours of environmental or conservation education.

Environmental Education: Under this alternative, continue in-Service re-education to provide for teacher-education activities. During the first 5 years, this will involve re-education of 2,500 Forest Service employees and education for 17,000 teachers, resource people, and others. In addition, continue a program of modest revision of environmental education publications.

Rural Development: Provide technical assistance in 10 program thrusts. A total of 280 man-years will be provided through more than 12,000 assists. The expected emphasis in each of the 10 program thrusts is:

	Years of Assistance/annually
Organization & leadership development	8
Comprehensive planning	34
Community Services & facilities	32
Housing	6
Health & welfare	4
Manpower & development	42
Recreation & tourism	17
Environmental improvement	115
Business & industrial development	27
Rural cooperatives	5

MODERATE SUPPLY ALTERNATIVE

Youth Conservation Corps: Expand this program during the period resulting in the following accomplishments during the first 5 years:

- 185,000 youths gainfully employed with personal incomes amounting to almost $70 million;
- 15 million hours of work-learning experience;
- an appraised value of $231,3 million of conservation work;
- an equivalent of 1.7 million hours of environmental or conservation education.

Environmental Education: Under this alternative, expand the entire program to cover additional approaches for education such as an educational television series. This expansion will require at least one full-time person in each Region and Area and additional staff time at other areas near large populations. During the first 5 years, the following is envisioned:

- re-education of 3,200 Forest Service employees who in turn will provide training for 21,000 teachers, resource people, and others;
- complete the revision of the environmental education publications;
- plan and complete pilot phase of the educational television series.

Rural Development: Provide technical assistance in 10 program thrusts. A total of 340 man-years will be provided through more than 16,000 assists. The expected emphasis in each of the 10 program thrusts is:

	Man-years of Assistance/annually
Organization & leadership development	9
Comprehensive planning	45
Community services & facilities	27
Housing	7
Health & welfare	5
Manpower & development	50
Recreation & tourism	25
Environmental Improvement	135
Business & industrial development	31
Rural cooperatives	6

HIGH SUPPLY ALTERNATIVE

Youth Conservation Corps: Intensify this program during the period resulting in the following accomplishments during the first 5 years:

- 400,000 youths gainfully employed with personal income amounting to $150 million;
- 32 million hours of working-learning experience;
- an appraised value of $500 million of conservation work;
- an equivalent of 3.6 million hours of environmental or conservation education.

Environmental Education: Under this alternative expand the entire program to cover additional approaches for education, such as an educational television series, and establishing environmental education sites. This expansion will require at least one full-time person in each Region and Area and additional staff time at other areas near large populations. During the first 5 years, the following is envisioned:

- re-educate 3,200 Forest Service employees who in turn will provide training for 21,000 teachers, resource people, and others;
- complete the revision of the environmental education publications;
- complete the educational television series; and
- establish a series of environmental education sites on National Forest lands.

Rural Development: Provide technical assistance in 10 program thrusts. A total of 550 man-years will be provided through more than 23,000 assists. The expected emphasis in each of the 10 program thrusts is as follows:

	Years of Assistance/annually
Organization & leadership development	16
Comprehensive planning	67
Community services & facilities	43
Housing	12
Health & welfare	8
Manpower & development	83
Recreation & tourism	34
Environmental improvement	225
Business & industrial development	52
Rural cooperatives	10

ACTIVITIES COMMON TO ALL SUPPLY ALTERNATIVES

Job Corps: Continue this program at its present level during the plan period. During the period, this will result in:

- 33,000 youths completing the training program;
- 25,600 youths placed in jobs; and
- $35 million worth of training projects completed.

Other Manpower Training Programs: Continue these programs at their present levels. During the period, they will result in gainful employment for 33,000 individuals and accomplished conservation work with an appraised value of $26.4 million.

Operation Mainstream: Continue this program at the current level during the plan period. This will result in:

- 3,900 individuals gainfully employed with a personal income of $8.5 million; and
- $10 million in conservation work accomplished.

SUPPORT ACTIVITIES

This section includes activities which are essential to meet all resource system outputs. Thus, they should not be displayed with any one system. Rather, they are common to all and for this reason are listed as support activities. Three categoreis are presented to show that certain of these activities applicable primarily to Federal, non-Federal, or all forest lands.

Activity	Alternative		
	Low	Moderate	High
	(During the period 1975 to 1979 unless noted otherwise)		
All Forest Land			
Protect 649 million acres of forest land from insect and disease. This will be accomplished by:			
- conducting detection surveys on (million acres)	1,840	2,535	3,460
- evaluate pest outbreaks on about (million acres)	450	580	715
Non-Federal Forest Land			
- by 1979 provide a level of fire protection at (million acres)	631	696	787
- by 1979 reduce Class E and larger fires by	-	60	100
- by 1979 intensified fire control on (thousand acres)	825	1,110	1,950
National Forest System Lands			
- provide specific information, technical services, and surveillance for:			
the soil resource on (million acres)	54	66	90
the water resource on (million acres)	42	50	70
the geologic resource on (million acres)	15	18	25
- intensify forest fire protection			
thousand man-caused fires prevented	0.5	3.7	5.0
thousand acres saved from burning	35	260	350
- fuel treatment			
million acres of fuel reduction	2.0	3.3	4.2
thousand miles of fuel and firebreaks	8.0	12.0	15.2
thousand acres of type conversion	75	145	312
- acquisition of land (thousand acres)	74	130	375
- exchange of land - offerings (thousand acres)	435	488	725
selections (thousand acres)	315	362	550
- land lines - maintain (thousands of miles)	3.5	7.2	16.2
survey (")	9.6	14.7	26.8
mark and post (thousands of miles)	8.1	13.0	19.5
- property corners - establish (thousands)	13.2	21.8	32.1
monument (")	39.0	61.7	86.0
- structural improvements			
field offices	15	75	120
dwellings and barracks	30	260	525
service and storage facilities	10	145	260
water and sanitation systems	80	332	485
communication facilities	35	195	360
fire improvements	0	90	245
site acquisition	0	12	25
- miles of road maintained (thousands)	90	93	109
- miles of trail maintained (thousands)	43	46	53
- miles of general purpose road constructed (thousands)	0	1.6	4.1
- miles of trails constructed or reconstructed (thousands)	0.1	2.3	7.7
- cooperative law enforcement agreements with local agencies by 1979 (number)	330	475	700

Research Activities

Outputs shown in the previous presentation are related to Forest Service management actions, either directly in the case of National Forest management or indirectly for State and private land where management receives assistance via Forest Service programs.

The role of research in the overall forest management scheme is to provide the necessary scientific knowledge and technology for proper assessment of the outcomes of alternative actions. The Forest Service Research Program is closely coordinated with the National Forest System and the State and Private Forestry management programs. However, research orientation is usually broader than this because it addresses problems common to all forest land, both public and private. In addition, Forest Service researchers work closely with their counterparts at universities and other research agencies to jointly solve management problems. For these reasons, the Forest Service Research Program is presented separately. The following material outlines the planned program at the low, moderate, and high alternative levels for each of 18 program areas.

Improved Timber Utilization

Produce the knowledge and technology necessary to increase timber supplies through more efficient utilization practices. Implementation of research results will depend upon economic realities. This research will provide for:

Low Alternative
- increased timber supply by the equivalent of 2 billion board-feet over a 10-year period
- more acceptable timber harvesting methods from both technical and esthetic points of view
- fewer timber and wood products waste disposal problems in forest and urban areas
- more efficient use of wood products in structural systems and thereby safer and better engineered products.

Moderate Alternative--includes all activities shown under the low alternative with the following changes:
- increased timber supply by the equivalent of 11 billion board-feet over a 10-year period

High Alternative--includes all activities shown under the low and moderate alternatives with the following changes:

- increased timber supply by the equivalent of 29 billion board-feet over a 10-year period

Intensive Timber Culture

Provide the knowledge and technology necessary to increase the growth and yield of desired species consistent with environmental standards. This research will provide for:

Low Alternative
- a one-third increase in commercial timber growth in 25 years
- improved quality and lower cost of forest products
- more effective use of the productive capacity on public and private forests in meeting national needs
- reduction of pressure to harvest timber on unsuitable areas

Moderate Alternative--includes intensification of activities shown under the low alternative with the following specific changes:

- a 50 percent increase in commercial timber growth in 25 years

High Alternative--includes highly intensive efforts on activities shown under the low and moderate alternatives with the following specific changes:

- doubling of commercial timber growth in 25 years

Insect and Disease Assessments

Identify, assess, and predict the impacts of destructive insects and diseases. This program will provide the knowledge needed for:

Low Alternative
- identification, assessment, and prediction of impacts of only one or two of the most damaging forest pests
- limited pest control actions

Moderate Alternative
- identification, assessment, and prediction of the cumulative net effects of the major destructive insects and diseases on timber production and related resource uses and values
- more precise definition of needs and priorities for additional research and for pest control actions, as well as benefits and costs, resulting from such actions

High Alternative--includes improved capabilities for rapid and accurate accomplishment of items shown under the moderate alternative plus:

- better understanding of the concept and practical implications of pest management programs

Pest Management Systems

Develop integrated pest management systems that are ecologically sound and environmentally acceptable. This research will provide for:

Low Alternative
- development of integrated systems for managing one or two major forest pests (gypsy moth and Dutch elm disease)
- forest pest control actions for other pests that would continue to rely heavily on toxic chemicals

Moderate Alternative. includes all items shown under the low alternative with the following changes:

- pest control actions for forest pests that include a more flexible mix of cultural, biological, and genetic controls and that rely less on toxic chemicals

High Alternative--includes all items shown under the moderate alternative with the following additions:

- development of integrated pest management systems for major forest pests including: Douglas-fir tussock moth, annosus root rot, larch casebearer, dwarf mistletoe, southern pine beetle, fusiform rust, spruce budworm, oak wilt, and western bark beetle
- simulation models to integrate prevention and control techniques that are environmentally acceptable
- reduced use of toxic chemicals and increased effectiveness in their use
- increased timber supply by reducing pest impacts 25 to 50 percent
- improved productivity, value, and usefulness of all forest-related resources
- increased effectiveness and predictability of forest regeneration practices

Protection of Wood in Stumpage and Use

Reduce losses in quality and quantity of wood in storage and use and extend the service life of wood in use. This program will:

Low Alternative
- reduce losses in quality and quantity of wood in storage and use and extend the service life of wood so that annual replacement costs are reduced by 10 percent providing that presently available pesticides and preservatives can continue to be used
- develop new technology for reducing loss of wood in use

Moderate Alternative--includes all activities shown under low alternative with the following addition:

- provide new materials and techniques, such as safer pesticides and preservatives, microbials, attractants, repellents, and treatments, to alter wood composition that pose no hazard to the environment or to human health

High Alternative--includes all activities shown under the low and moderate alternatives with the following additions:

- extend life of wood in storage and use by at least one-third, thereby significantly extending the Nation's timber supply and reducing annual replacement costs of wood in structures by 50 percent or more
- increase use of environmentally acceptable methods for managing wood-destroying insects and micro-organisms.

Fire Prevention and Hazard Reduction

Develop methods to reduce the occurrence of wildfires. This research will provide for:

Low Alternative
- limiting number of man-caused fires to not more than a 20 percent increase over current levels, despite sharp increases in use of forest land
- holding fire damage to present levels
- maintaining fire control costs of a level not more than 80 percent above current levels despite increasing numbers of fires and inflationary pressures

Moderate Alternative--includes all items shown under the low alternative with the following changes:

- holding man-caused fires at present levels despite increasing use of high-risk areas by the public
- minimizing escalation of fire-fighting costs by adaptation of more efficient technology

High Alternative--includes all items shown under the low and moderate alternatives with the following changes:

- one-third reduction in man-caused fires in hish-risk areas
- fuel management techniques to reduce by 25 percent damage to natural resources from fire by decreasing both acreage burned and the fire intensity on the land that does burn
- elimination of excessive cost of "standby" and emergency fire forces now required by the combination of peak fire occurrence loads in areas of inherently high fuel hazard

Fire Detection and Suppression

Develop technology to improve efficiency of fire detection, to predict fire behavior, and to increase efficiency of fire control. This program will:

Low Alternative
- permit development of components for a complete and integrated detection and suppression system

Moderate Alternative
- hold fire damage to present levels by increasing efficiency of suppression forces
- provide an optimum design for prevention-detection-attack systems
- provide guidelines for more economical fire suppression

High Alternative--includes all items shown under the moderate alternative with the following additions:

- reduce the possible occurrence of large destructive forest fires through the development of new methods and equipment that will:
  - improve the reliability of fire detection systems
  - improve the effectiveness of initial attack and suppression methods

Recycling Sewage and Effluent Waters

Provide the technology to: (1) recycle and reuse various forest, industrial, and municipal waste material on forest and rangeland; (2) select environmentally safe waste treatment disposal land sites; and (3) enrich, improve, and irrigate forest and range land for potentially greater site productivity. The research will:

Low Alternative
- be limited to the Northeastern and Lake States area
- lower some aspects of treatment-disposal costs
- provide limited technology to increase onsite productivity for nutrients and irrigation water

Moderate Alternative--includes all items shown in the low alternative with the following changes:

- aid municipalities in northern and northwestern States to achieve water-quality standards
- lower treatment-disposal costs, especially from high-density recreational areas
- provide technology to recycle and conserve resources and increase on-site productivity from nutrients and irrigation water

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- provide guidelines for the protection of the environment (air, water, soil, and biota) from sewage and other effluent waste disposal
- lower treatment disposal costs for municipalities, small communities, and industries
- provide esthetic improvements such as open space preserves and greebelt areas
- develop guidelines for greenbelt fuelbreaks for fire protection
- provide means for reclamation and restoration of degraded lands
- develop methods to recharge acquifers

Reducing Impacts of Man's Activities

Reduce the impact of man's activities on forest environments. This research will provide knowledge for:

Low Alternative
- some reduction of environmental pollution from toxic pesticides
- limited improvement in environmental quality by more effective use of trees that can tolerate or ameliorate atmospheric contaminants
- minimum technology to detect and assess sediment production and transport in forest environments

Moderate Alternative
- major steps in the development of less toxic pesticides and improved application technology
- rapid assessment of acute and chronic effects of air pollutants on the major tree species and development of guidelines for selecting individuals or species most tolerant and useful for revegetation of damaged areas
- reduction of nutrient loss from watersheds
- reduction of stream pollution caused by erosion and sedimentation

High Alternative--includes all items shown in the moderate alternative with the following additions:

- reduction of environmental pollution by use of less toxic materials and safer, less frequent treatments
- improved environmental quality by more effective use of trees to ameliorate atmospheric contaminants
- assessment of chronic effects of air pollutants on Forest ecosystems
- improved surface water quality
- prevention or abatement of siltation of reservoirs and eutrophication of lakes
- protection of aquatic life

Minerals Development

Develop criteria for minimizing environmental and socio-economic impacts of mineral development including alternative engineering, rehabilitation, and planning procedures. This program will:

Low Alternative
- improve rehabilitation of disturbed areas and rebuilding of range and wildlife habitats on a limited scale in the Appalachians and two areas in the West, primarily through revegetation methods
- reduce mining-caused erosion and sediment in streams in the same areas.

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- rehabilitate, by both vegetational and mechanical means, areas surface-mined in several western ecosystems
- provide alternatives for longer range management of rehabilitated land
- estimate mining impacts on rural community development
- provide knowledge for improved administration of minerals development
- provide guidelines for improving rural and community development and stability in mining areas

High Alternative--includes all items shown in the low and moderate alternatives with the following addition:

- allow exploration and extraction of needed minerals to help meet the Nation's energy needs while protecting important environmental values in both the Eastern and Western United States

Environmental Amenities

Develop new methods of managing natural resources as environments for living, working, and recreation with emphasis on environmental amenities. This research will provide:

Low Alternative
- methods of landscape design
- methods of managing visitor use of wilderness
- basic data defining desert ecosystems and their critical (fragile) components
- implementation of the recently developed warning system for avalanches
- information for maintenance and renewal of existing (aging) Plains shelterbelts

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- landscape analysis methods and improved landscape design methods
- information necessary for preserving and managing natural ecosystem in wilderness
- evaluation of man's impact on desert ecosystems and rehabilitation alternatives
- knowledge to further refine the avalanche warning system and other methods of managing avalanche areas
- information for selection and improvement of plant materials for establishing or replacing shelterbelts

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- methods of quantifying scenery values
- better ways of handling landscape esthetics in land-use planning

- alternatives for protection and preservation of the wilderness resource
- guidelines for effective use and management of wilderness for visitors' enjoyment
- methods for prevention of loss of lives and property to mountain avalanches
- guidelines for preservation, restoration, and controlled use of fragile desert environments
- ways to reduce wind erosion and increase production of plants and animals in the Great Plains

Recreation Management

Develop new knowledge to improve the effectiveness of providing and managing outdoor recreation opportunities for increasing numbers of Americans. This program will provide:

Low Alternative
- fundamental work on identifying specific benefits to man of recreation and use of natural environments including studies of factors affecting people's choices
- identification and measurement of forest-related recreation activities
- measurement of participation in dispersed types of recreation and identification of critical resource requirements

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- methods for measuring specific benefits from outdoor recreation
- better systems for managing a full array of recreational opportunities
- systems for planning and managing dispersed recreation
- a start on methods of identifying, preserving, and managing archaeological and historical treasures on National Forests

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- guidelines for quantifying benefits of outdoor recreation
- the basis for a better mixture of recreational opportunities for satisfying public desires
- more effective programs for serving the public through visitor centers
- improved methods for preservation of irreplaceable archaeological and historical treasures
- a better choice of recreation opportunities ranging from dispersed to concentrated activities

Urban Environments

Develop new knowledge and management guides to serve people's needs for forests and trees in and near major urban areas. This research will provide:

Low Alternative
- analysis of work needed to define fundamental relations between wildlife habitats, watersheds, and trees on urban-suburban forest areas
- definition of urban and suburban dwellers' outdoor recreational requirements
- analysis of research needed on the use of trees to enhance urban and suburban environments

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- knowledge of habitat requirements for nongame birds and mammals
- better ways to manage urban forests and open spaces
- guidelines for better management and use of forests and other open-space areas as recreational and esthetic resources
- information on motivations of owners of small forest tracts
- knowledge on the use of trees and shrubs to ameliorate adverse environmental conditions

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- the basis for more and a better balanced mixture of outdoor recreational opportunities in and near major urban areas
- guidelines for environmental design and modification to improve community and urban environments and minimize adverse effects (e.g., noise reduction)
- improved quality of water from municipal watersheds
- guidelines for incorporating private landowners' objectives in formulation of public policy and programs for timber production from small woodlands

Resource Assessment

Collect data on the Nation's forest resources and provide analyses of demand and supply to guide the formulation of forest policies and the direction of programs. The present program will provide for:

Low Alternative
- complete reinventory of the Nation's timber resources at the current cycle which varies from 10 to 20 years from State to State
- preparation of periodic analyses of supplies and demands for timber and timber products at intervals of about 10 years
- continuation of present research on techniques for reducing the costs and increasing the effectiveness of surveys of timber resources

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- reducing the nationwide inventory cycle for timber resources to 10 years
- intensifying the survey of timber resources to provide more localized data
- development of methods for inventorying nontimber renewable forest resources
- evaluating the effect of various intensified management practices on future timber supplies
- preparation of periodic analyses of supplies and demand for selected nontimber renewable forest resources

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- reducing the inventory cycle for timber resources in the South to 5 years
- intensifying the survey of timber resources to provide reliable county data for all heavily forested counties
- surveys of nontimber renewable forest resources at intervals of roughly 10 years
- preparation of periodic analyses of supplies and demands for all renewable forest resources at intervals short enough to keep the analyses current

Evaluation of Resource Management and Market Development

Develop more effecient ways of managing forest resources and marketing forest products. This program will provide:

Low Alternative

- methods for evaluating land management alternatives and investments in producing forest commodities
- criteria for guiding investments in timber production in four major forest types
- operational guidelines for use by land managers in preparing multiple use management plans and in making management decisions
- improved efficiency in harvesting and marketing the timber crops produced on private forest land
- evaluation of opportunities for improving local economies through expansion of timber supplies and wood-using industries in five or six major rural development areas

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- criteria for guiding investments in timber production in 10 to 12 major timber types
- guides for investments in selected nontimber renewable forest resources

- accelerated work on the development of operational guidelines for multiple-use management
- evaluation of responses from private forest landowners to various kinds of public and private forestry assistance programs
- planning methods for integrating public and private development of recreation opportunities
- development and evaluation of more efficient and lower cost methods of processing, distributing, sale, and use of timber products
- evaluation of opportunities for improving local economies through expansion of timber supplies and wood-using industries in six to ten major rural development areas

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- criteria for guiding investments in timber production in all major forest types
- evaluations of alternative sizes and combinations of forestry programs that would effectively and cheaply supply forest products
- methods for program formulation and land-use planning for both Federal and State Agencies
- guides for investments for all nontimber renewable forest resources

Basic Hydrologic-biologic Processes

Develop new knowledge of the basic physical, chemical, and biological processes that relate to the management of forest and range watersheds and to the production and diversity of a variety of ecological systems. This research will provide:

Low Alternative
- basic information on
  (1) hydrologic processes in forest and range watersheds
  (2) nutrient cycling and outflow for a limited number of managed ecosystems
  (3) management impacts for a minimum number of managed ecosystems
- knowledge of basic soil nutrient and water-quality factors
- quantification of water losses and other hydrologic factors

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- guidelines to help land managers to use basic soil nutrient and water-quality factors to reduce and control nutrient losses and maintain high-quality water
- better understanding of ecological subdivisions of the major forest and range types

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- a stronger scientific base for improving management techniques to ensure regeneration, survival, and growth of desired species and types, both plant and animal
- better estimates of the increases in productivity attainable through modification of nutrients, water supply, canopy structure, species composition, and other factors

Fish, Wildlife, and Livestock Ecology

Provide fundamental knowledge of the environmental requirements of fish, wildlife, and livestock and to develop ways to effectively integrate the management of these resources with other range and forest resources. This research will provide for:

Low Alternative
- predicting the effects of certain man-caused disturbances on wildlife populations and wildlife interactions (studies will be limited to the impacts of livestock grazing, fire, and timber management on wildlife inhabiting selected regions of the United States)
- identifying the habitat requirements of threatened species of wildlife found in forests and on rangeland

Moderate Alternative--includes all items shown in the low alternative with the following additions:

- predicting the effect of natural and man-caused disturbances on fish and wildlife populations and wildlife interactions (research will be expanded to include the impacts of other disturbances, such as insects, disease, and pollution, on the habitats of fish and wildlife in selected regions in the United States)
- identifying the habitat requirements of threatened species of fish and wildlife (research will be expanded to provide the knowledge for maintaining, restoring, or improving the habitats of species of fish and wildlife in greatest danger of extinction)
- increasing livestock production on rangeland through better integration with other uses

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- increased supply of livestock forage by improved management systems
- estimates of amenity and other social values of fish, wildlife, and plants
- restored habitats and reduced competition between introduced and native biota
- management systems to protect and restore habitats of threatened species of fish, wildlife, and plants

Timber-related Crops

Increase rural employment and income by increasing the production and value of timber-related crops. This research will provide for:

- maintenance or an increase of primary and supplementary income opportunities for approximately 50,000 people in forested areas
- more effective use of forests for production of naval stores and maple sap
- maintenance of current quality of costs of naval stores and maple sap

Moderate Alternative--includes all items shown in the low alternative with the following changes:

- maintenance or an increase in primary and supplementary income opportunities for approximately 80,000 people in forested areas
- more effective use of forests for production of Christmas trees

High Alternative--includes all items shown in the low and moderate alternatives with the following additions:

- more effective use of the forests for production of medicinal plants
- improved quality and reduced costs of timber-related crops
- evaluation of opportunities for joint production of timber-related crops and other forest resources.

Effects on the Human Environment

In reviewing the activities included within the systems described earlier, it becomes quite evident that the systems are interrelated and tend to complement each other. In addition, it's evident that each alternative for a system would have varying impacts on environmental, social, and economic factors that make up the total human environment.

In preparing the draft Environmental Program for the Future, the Forest Service considered the possible effects of each system alternative on the other systems, their possible impacts on environmental quality, economic development, and social well-being. An analysis of all of these is detailed in Chapter VII of the Environmental Program for the Future Draft document. It is too long to be included with these highlights. However, the following section gives some highlights of the type of impact analysis involved. This section discusses the effects of transportation systems and access on the environment.

Transportation Systems and Access

Transportation systems (roads, trails, water, air, and rail) are vital to the use and enjoyment of forest land. As the supply level increases for both public access and commodities, additional roads and trails and some improvement of existing roads will be needed. With increasing additional road mileage, impacts will also increase. Environmental impacts can be offset considerably by adequate planning and road design standards and by management of the system. In a substantial number of cases roads will be closed to public use either all or part of the time to protect resource values such as wildlife. Strategic location, proper design, and good construction and maintenance practices all help minimize adverse impacts on the soil and water.

The potential for possible soil erosion and landslides from road construction is related to the miles of road constructed, the soil type, and the terrain. The following estimates of road construction and reconstruction mileage for a 5-year period on National Forest land illustrate the potential:

	Program Level		
	Low	Moderate	High
	-------Miles of Road, 1975-79-------		
Forest Service-built	1,200	6,000	14,000
Timber Operator-built	36,500	42,500	41,000
Total	37,700	48,500	55,000

The low supply alternative would provide 22 percent fewer miles of road than the moderate supply alternative. This would lessen the environmental impact of road construction, but it would tend to concentrate forest use in limited areas and cause more congestion.

Most forest roads built for timber access at the higher levels would help disperse recreation and facilitate access to the forest. Only 5 percent more miles of new roads would be needed under the high supply alternative than under the moderate supply alternative. This is because the high supply alternative includes greater use of logging systems that do not need as many roads, and more of the harvest will come from the already roaded, intensively managed timber stands. Because of greater use of selective harvest methods, more temporary work roads would be constructed, but they would be closed either part or all of the time as harvest progresses.

The higher levels of road construction would have some temporary impact on soil stability and water quality in the immediate vacinity. Erosion and runoff during road construction would tend to rise, causing some increased stream sedimentation. However, with adequate quality in roads location, design, and construction, erosion and sedimentation can be kept to minimum levels. Erosion and runoff would again decline as drainage and soil bank treatments are completed.

There would be some temporary adverse impact on fish habitat in nearby streams. In certain areas of the Pacific Northwest, Oregon, Washington, and northern California, this would result in some temporary reduction of fish numbers spawning in the gravel beds of selected forest streams. Design, location, and construction quality control would be critical to any new road construction in this area.

Roads can have an adverse impact on game patterns. Game migratory routes must be fully considered in road location and design. Some major permanent roads can become a serious threat to game animals if passages are not provided and adequately identified. Temporary roads, when obliterated and re-seeded become future travel lands and provide new forage areas.

The level of road construction has a direct impact on ability to carry out silvicultural treatments--thinning, harvesting, regeneration, etc. Selection cut harvesting requires considerable more mileage than clear cutting. The health of forest timber, growth yields, and level of harvest are immediately intertwined with the level of road construction.

Road access to national forest lands has a direct bearing on the quantity and quality of recreation opportunities. Additional roads can provide easier access to new desirable vistas, fishing streams, and camping sites. They provide opportunity to disperse recreationists and thus reduce overcrowding.

The ability to carry out both fire prevention treatments and fire control efforts is greatly affected by the level of road construction. Equipment access is necessary for many fuel reduction treatments. Fighting fire in unroaded areas requires extensive use of hand fire fighting methods, heavier use of air tankers, and emergency use of bulldozers to cut fire lines when necessary. The speed and efficiency of fire suppression efforts and potential for disturbing the environment least in fire fighting operations are considerably improved when road access is available.

Conclusions

The three alternative levels of activity cover a portion of the range of choices of Forest Service activity for the next 10 years. Obviously, there are many more combinations of kinds and levels of programs that could be considered. The choice selected should be based on a valid appraisal of the relative values to the public of the various goods and services and their cost. There are, of course, many other national concerns, and only the American people, can decide upon overall national priorities.

During the past three decades, the emphasis in forestry has been on providing more goods and services--recreation including wilderness, water, timber products, wildlife and fish, forage for livestock, and minerals. The last decade has seen the development of an increased environmental consciousness--a consciousness that seeks productive harmony between man and nature. At the same time, however, the concept of providing a high quality of life includes a number of concerns such as the alleviation of poverty and the avoidance of resource shortages that may seriously disrupt our ability to reach national social and economic goals.

Thus, in the next decade, forestry could address two major objectives:

(1) Assuring appropriate esthetic and amenity values of the forest environment;

(2) Assuring adequate flows of goods and services at reasonable prices.

It is clear that if the Nation desires to meet both major objectives there must be not only a greater, but also a wiser, investment of efforts on forest land in both public and private ownerships.

This Draft Forestry Plan is presented to the public as a basis for understanding the problems and opportunities of America's forest lands in contributing to national goals.

The Forest Service would like to hear from all interested members of the public on its Draft Environmental Program for the Future. What kind of management do you want to see on America's Forests? What mix of outputs do you want? What level of research do you feel is most appropriate?

Because of the complexity and scope of the programs presented, a response form has been prepared as an aid to public comment. Copies of the response form and copies of the full draft document of the Environmental Program for the Future, can be obtained from the office of the Chief of the Forest Service in Washington, D.C.

QUESTIONS AND ANSWERS

Q: What is the purpose of the Draft Environemntal Program for the Future (EPFF)?

A: The Environmental Program for the Future is a summary of Forest Service efforts to evaluate information and develop a long-range program. It is intended to aid in establishing a national forestry plan for the next 10 years and to help define the Forest Service's role in achieving prescribed goals. Such a national plan is needed to provide administrators, the Congress, and the public with a systematic, definitive approach to the forest resource and environmental challenges of the future.

Q: Why is the Forest Service asking for public comment on the EPFF?

A: The Forest Service wants public comment on EPFF because although the agency has the responsibility of carrying out a national forestry program, all Americans are either directly or indirectly affected by the direction that program takes. In its present draft form the EPFF sets before the Nation several alternative directions that might be taken, and provides information on the effects of the different alternatives. Public comment received on this draft will be used to help refine and improve the draft in developing a long-range plan for forestry that will best serve national, social, economic, and environmental goals.

Q: How was the Environmental Program for the Future developed?

A: A great many factors were considered in development of EPFF. Primary factors were known land use capabilities, estimated demands on the forest resources, and the current national issues regarding use of these resources. These considerations were then integrated with national management goals, legislative direction and administration policy to project three alternative levels of management. The low supply alternative would continue Forest Service program activity at about the 1973-74 level; the moderate alternative would maintain the same rate of increase as has occurred in the last decade; the high alternative would significantly intensify programs.

Q: Are these three identified alternatives the only options available?

A: No, not necessarily. There are any number of combinations of kinds and levels of programs that could be considered. However, the three alternatives presented can serve as a basis for rational and organized public participation for developing a long-range program.

Q: Why are no regional breakdown of alternative outputs presented?

A: Although this proposal is based on resource data obtained at field levels, it is not a collection of local and regional plans but reflects national objectives and priorities. After thorough review and discussion, and consideration of public comment, the national plan will then serve as a guide for the development of other plans to meet regional and local objectives. Public involvement will be part of this process.

Q: Why has no Environmental Impact Statement been issued on the Environmental Program for the Future?

A: EPFF is a draft of a proposed long-range forestry plan which proposes for public discussion several possible alternatives for resource management. It is a basis for informed public comment concerning such resource management. This draft program does not commit land or any other resources to a specific management plan; specific resource allocations and actions will be required when a final plan is adopted. Individual environmental statements will be prepared for those specific actions which will significantly affect the quality of the human environment.

Q: What does the Forest Service recommend as to the future course of forest management in the United States?

A: The Forest Service believes that in the next decade forestry could address two major objectives:

1. Assuring appropriate esthetic and amenity values of the forest environment.

2. Assuring adequate flows of goods and services at reasonable prices.

To do both will require on the part of the Nation a much greater and wiser investment of efforts on forest land.

GPO 879-434

CURRENT INFORMATION REPORTS

No. 1 MINERAL KING (out-of-print) . . . . February 1969

No. 2 LUMBER & PLYWOOD SUPPLY . . . . . .March 1969

No. 3 GRAZING FEES ON NATIONAL FOREST RANGE . . June 1969
(out-of-print)

No. 4 FOREST SERVICE TIMBER APPRAISALS . . . . July 1969

No. 5 MEETING FUTURE NEEDS FOR SOFTWOOD LUMBER
AND PLYWOOD . . . . . .September 1970

No. 6 TIMBER MANAGEMENT FOR A QUALITY
ENVIRONMENT . . . . . May 1971

No. 7 FOREST SERVICE RESPONSE TO RECOMMENDATIONS
OF FORESTRY DEANS. . . . . June 1972

No. 8 OUTLOOK FOR MEETING FUTURE TIMBER
DEMANDS . . . . . December 1972

No. 9 PROPOSED NEW WILDERNESS STUDY AREAS
(out-of-print) . . . . . January 1973

No. 10 FOREST-RANGE ENVIRONMENTAL STUDY . . . . May 1973

No. 11 NEW WILDERNESS STUDY AREAS. . . . . October 1973
(Supercedes CI Report No. 9)

No. 12 NEW NATIONAL FORESTS FOR ALASKA . . . February 1974

No. 13 HIGHLIGHTS OF THE ENVIRONMENTAL
PROGRAM FOR THE FUTURE . . . . . August 1974

HIGHLIGHTS OF THE ENVIRONMENTAL PROGRAM FOR THE FUTURE is No. 13 in a series of Current Information Reports prepared to keep Forest Service employees informed on topics of Servicewide interest. Extra copies may be obtained from Regional Offices or from the W.O.

ENVIRONMENTAL PROGRAM FOR THE FUTURE
A LONG-TERM FORESTRY PLAN (DRAFT)
RESPONSE FORM

Respondent:

Name_____

Address_____

City_____

State_____Zip_____

Organization Affiliation (Optional)_____

Mail Response Form To: Chief
Forest Service
U. S. Department of Agriculture
Washington, D. C. 20250

or To: (See list of major Forest Service field offices on page 33. All responses mailed to field offices will be transmitted to the Chief for review).

All comments postmarked prior to December 15, 1974, will be accepted for review and consideration in developing a proposed long-term Forestry Plan.

This response form has been prepared to facilitate public comment on the Environmental Program for the Future, a draft, long-term forestry plan developed by the Forest Service, U.S. Department of Agriculture. It is intended to help the public express comment on a very highly complex program, and to help assure that comments are identifiable in the process of agency review. However, written comment in any form will be accepted and fully considered in the review process.

Each respondent is strongly urged to review either the document, "Environmental Program for the Future--A Long Term Forestry Plan (Draft) June, 1974" (EPFF), or Current Information Report #13, "Highlights of the Environmental Program for the Future--A Long Term Forestry Plan (draft)," before filling out this response form.

The EPFF document, approximately 240 pages, includes an in-depth discussion of issues, impacts, and related background information in addition to a description of potential outputs for six different resource systems and 18 research projects at three alternative levels. The Current Information Report, approximately 44 pages, includes a brief introduction, description of outputs for the six resource systems and 18 research projects, and some pertinent questions and answers.

Additional copies of the draft EPFF document and the Current Information report can be obtained from; Chief, Forest Service, U.S. Department of Agriculture, Washington, D.C., 20250. A response form will accompany each.

GUIDES FOR USE OF RESPONSE FORM

On the following pages the six Resource Systems, support activities, and 18 Research program areas are identified. These correspond to the description of alternatives for each activity in the draft EPFF document, Chapter VI, pages 10 through 35, and in Current Information Report #13, pages 8 through 33. It is suggested that you refer to the description of alternatives as you make comments in this response form. The description of alternatives is identical in both documents.

For each activity on which you wish to comment, please check the block next to the alternative you prefer and give the reasons for your preference. Also identify any modifications you would like to see made within these alternatives.

You may also comment on alternatives not selected, if you wish.

The blank pages at the back may be used to extend your comments, or to make comment on any aspect of EPFF not referred to in the response form. If you need additional space, add supplemental pages and identify the system, program, or subject to which the comments apply.

Land and Water Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Timber Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Recreation and Wilderness Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Range Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Wildlife and Fish Habitat Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Human and Community Development Resource System

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Support Activities

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Improved Timber Utilization

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Intensive Timber Culture

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Insect and Disease Assessments

Low ( ) Comments:_____

Moderate ( ) Comments:_____

High ( ) Comments:_____

Research Activities

Pest Management Systems

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Protection of Wood in Stumpage and Use

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Fire Prevention and Hazard Reduction

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Fire Detection and Suppression

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Recycling Sewage and Effluent Waters

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Reducing Impacts of Man's Activities

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Minerals Development

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Environmental Amenities

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Recreation Management

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Urban Environments

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Resource Assessment

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Evaluation of Resource Management and Market Development

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Basic Hydrologic-biologic Processes

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Fish, Wildlife, and Livestock Ecology

Low ( ) Comments:

Moderate ( ) Comments:

High ( ) Comments:

Research Activities

Timber-related Crops

Low ( ) Comments: _____

Moderate ( ) Comments: _____

High ( ) Comments: _____

Additional Comments

Additional Comments

Additional Comments

Additional Comments

Additional Comments

Additional comments

OPTIONAL

The following questions are to aid in improving the usefullness of future documents for public review and to aid in getting such information to the public.

1. Read EPFF document ( )
2. Read condensed EPFF ( )
3. Read both documents ( )
4. Read neither document ( )

5. How did the EPFF first come to your attention?

   a. News Media ( )
   b. Organization ( )
   c. Direct Mail from Forest Service ( )
   d. Speeches ( )
   e. Other ( )

6. What specific improvements of the EPPF documents would have helped your understanding of it?

   a. Draft EPFF document

   _____

   _____

   _____

   _____

   _____

   _____

   b. Current Information Report on EPFF

   _____

   _____

   _____

   _____

   _____

   _____

Major Forest Service Field Offices

Regional Forester
Forest Service, USDA
Federal Building
Missoula, Montana 59801

Regional Forester
Forest Service, USDA
Federal Center Building 85
Denver, Colorado 80225

Regional Forester
Forest Service, USDA
517 Gold Avenue, SW
Albuquerque, New Mexico 87101

Regional Forester
Forest Service, USDA
324 25th Street
Ogden, Utah 84401

Regional Forester
Forest Service, USDA
630 Sansome Street
San Francisco, California 94111

Regional Forester
Forest Service, USDA
319 S.W. Pine Street
P.O. Box 3623
Portland, Oregon 97208

Regional Forester
Forest Service, USDA
Suite 800
1720 Peachtree Road, N.W.
Atlanta, Ga. 30309

Regional Forester
Forest Service, USDA
633 West Wisconsin Avenue
Milwaukee, Wisconsin 53203

Director
North Central Forest Experiment Station
Folwell Avenue
St. Paul, Minnesota 55101

Director
Northeastern Forest Experiment Station
6816 Market Street
Upper Darby, Pennsylvania 19082

Director
Intermountain Forest and Range
Experiment Station
507 25th Street
Ogden, Utah 84401

Director
Pacific Northwest Forest and Range
Experiment Station
809 NE Sixth Avenue
P.O. Box 3141
Portland, Oregon 97208

Director
Pacific Southwest Forest and Range
Experiment Station
1960 Addison Street
Berkeley, California 94701

Director
Rocky Mountain Forest and Range
Experiment Station
240 Prospect Street
Fort Collins, Colorado 80521

Director
Southern Forest Experiment Station
Federal Building
701 Loyola Avenue
New Orleans, Louisiana 70113

Regional Forester
Forest Service, USDA
Federal Office Building
P. O. Box 1628
Juneau, Alaska 99801

Director
Institute of Tropical Forestry
P.O. Box AQ
Rio Piedras, Puerto Rico 00928

Area Director
Northeastern Area--S&PF
Forest Service, USDA
6816 Market Street
Upper Darby, Pennsylvania 19082

Director
Southeastern Forest Experiment Station
P.O. Building--P.O. Box 2570
Asheville, North Carolina 28892

Director
Forest Products Laboratory
P.O. Box 5130
North Walnut Street
Madison, Wisconsin 53705

Area Director
Southeastern Area--S&PF
Forest Service, USDA
1720 Peachtree Road, N.W.
Atlanta, Georgia 30309

GPO 879-444